

Please amend the Abstract as follows

Provided are a piezoelectric element and a liquid-jet head using the same, in which favorable crystallinity can be obtained with improved uniformity, breakage of a piezoelectric film can be prevented, ~~and thereby~~ providing stable displacement properties ~~can be obtained, a liquid jet head using the piezoelectric element and a manufacturing method thereof. Steps of forming a piezoelectric layer are carried out a plurality of times so that a plurality of the piezoelectric layers are stacked, thus forming the piezoelectric film. The steps of forming the piezoelectric layer include: applying a sol containing an organometallic compound, drying the sol containing the organometallic compound, degreasing the sol containing the organometallic compound thus gelating the sol, and crystallizing the gelated organometallic compound. When forming a lowermost layer of the piezoelectric layers, a rate of temperature increase at least during initial degreasing is set to be 500°C/min or lower. The piezoelectric element includes a lower electrode, a piezoelectric film formed on the lower electrode, and an upper electrode formed on the piezoelectric film. The piezoelectric film in turn includes a lower layer portion having column crystals, and an upper layer portion having column crystals which are continuous from those in the lower layer portion and having sizes larger than those in the lower layer portion.~~